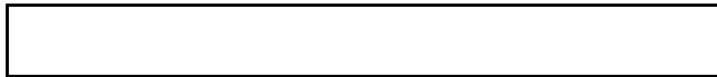


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STEREO CHIP COMPARATOR



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PROGRESS REPORT

For the Period of
February 11, 1964 through April 30, 1964

Declass Review by NIMA / DoD



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PROGRESS REPORT

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Since issuance of the last progress report dated February 10, 1964, all items indicated as delayed on page 2 of the above report have been received approximately at the promised delivery date, and their final installation has since been completed. The Comparator has been installed in its vibration isolated console, and an extensive test program was started a few weeks ago. As with all new instrumentations of extremely high precision requirements, this "de-bugging" period dictated in some instances changes or alterations, none of which however affected the basic design concept.

MAJOR CHANGES OR ADDITIONS

1. Instability of the Microscope vertical adjustments due to the tapered pinion shaft output has been eliminated by pinning, achieving a positive precise motion of the microscope.
2. Replacement of the [] support bracket that was supplied with the Stereo Microscope. This was necessitated by inadequate support of the Microscope over its full available support area, with the furnished bracket. A new expanded bracket with increased support area was designed, manufactured, and incorporated within the equipment.

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3. In accordance with customer's suggestion, a dimming control for the illuminated spot projector has been incorporated within the [] control chassis. STAT

4. The optical filter wheels and their positioning controls had to be reworked and adjusted to obtain reliable control. This was necessitated by the unreliability of the purchased stepping obtained from the vendor [] STAT

5. Water cooling of the Hg 198 interferometer lamps had to be provided by means of reservoirs and motor driven pumps. The purpose of this change was necessitated by the high frequency of the ways, when driven manually. The amplitude and frequency of the vibration of the way could not be predicted prior to final assembly.

6. The console cover had to be restyled to assure maximum isolation of the instrumentation from its environments. The console cover is attached to the base to minimize transfer of vibration and heat from the operator to the measuring components.

7. Additional mounting screws had to be provided for the "X" ways, to minimize the possibility of future displacement by usage or shipment.

8. The interferometer mounts had to be provided with means for adjustments so that they can be maintained and adjusted in the "field" if required.

WORK PRESENTLY BEING PERFORMED

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1. The projection system is being provided with shielding to eliminate stray light.
2. Installation of a dual dust curtain is being modified to accommodate the "X" interferometer operational path.
3. Bellows are being installed between the "X" respectively, "Y" table corner cubes, and their associated interferometers, to prevent external stray light to enter their operational paths.
4. The effects of gear drive vibrations on the measuring interferometers is to be minimized. This frequency of vibrations results in observing a vibration of one axis as the other axis is driven. In addition, it increases the electronic noise of the Interferometer that is being driven. The magnitude of this vibration could not be calculated or predicted, even though provisions were made in the original design to minimize these vibrations. More effort is being expended to reduce or eliminate these vibrations.
5. The stereo glass platens, which have to accept the film chips, are being refinished to eliminate shadow lines to appear at the location of the vacuum grid grooves. Delivery is expected next week. This rework was caused by the vendor's inability to deliver the glass platens meeting the required specifications.

FUTURE WORK NECESSARY

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1. Installation of various cables and interconnection to
[] counters, as soon as they arrive []

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2. Installation of vacuum lines and testing.

3. Installation of console covers.

4. Final accuracy checkout.

5. Packaging.

[] making every effort to expedite
this work as rapidly as possible by having the proper mechanical,
optical and electronic personnel completing the testing program
on a first priority basis.